World Organisation for Animal Health

Peter Kirkland - - AUSTRALIA

WOAH Reference Laboratory Reports Activities 2024

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LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	Bovine viral diarrhoea virus
***Address of laboratory:**	Virology Laboratory, Elizabeth Macarthur Agriculture Institute, Woodbridge Rd Menangle NSW Australia
***Tel:**	+61-2 46.40.63.31
***E-mail address:**	peter.kirkland@dpie.nsw.gov.au
Website:	www.dpi.nsw.gov.au
***Name (including Title) of Head of Laboratory (Responsible Official):**	Dr P.D. Kirkland
***Name (including Title and Position) of WOAH Reference Expert:**	Dr P.D. Kirkland, Senior Principal Research Scientist, Manager Virology Laboratory
***Which of the following defines your laboratory? Check all that apply:**	Governmental

TOR1: DIAGNOSTIC METHODS

1. Did your laboratory perform diagnostic tests for the specified disease/topic for purposes such as disease diagnosis, screening of animals for export, surveillance, etc.? (Not for quality control, proficiency testing or staff training)

Yes

Diagnostic Test	Indicated in WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
BVDV Virus neutralisation test	Yes	11874	0
BVDV Antibody ELISA	Yes	301	0
BVDV Agar gel immunodiffusion test	No	6049	0

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Direct diagnostic tests		Nationally	Internationally
BVDV Virus isolation	Yes	57	0
BVDV antigen detection ELISA	Yes	18152	0
BVDV qRT-PCR assay	Yes	1528	200

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOAH?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAH Members?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient WOAH Member Countries	Country of recipients
Pan-pestivirus reactive monoclonal antibodies	VNT & virus isolation	Produced	300mL	50mL	1	CANADA,

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOAH Members?

Not applicable

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

No

7. Did your laboratory validate diagnostic methods according to WOAH Standards for the designated pathogen or disease?

No

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

Yes

9. Did your laboratory validate vaccines according to WOAH Standards for the designated pathogen or disease?

Yes

Name of the new vaccine developed	Description and References (Publication, website, etc)
Development of an mRNA vaccine for BVDV-1 and BVDV-2	This is a long-term project using novel mRNA technology to develop broadly protective vaccines for BVDV infections. This research is making outstanding progress but at present there are no official reports due to the commercially sensitive nature of the research. Although there is no official WOAH reference laboratory for Border Disease virus, this BVDV Reference Laboratory provides support to WOAH for BDV matters, including editing of the manual chapter. A pilot vaccine has been successfully developed for BDV as

	part of this larger pestivirus vaccine initiative. A scientific publication is being prepared for the BDV vaccine at present

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAH Members?

Yes

Name of WOAH Member Country seeking assistance	Date	Which diagnostic test used	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
VIETNAM	2024-09-15	BVDV qRT-PCR	200	200

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAH Member?

Yes

Name of the WOAH Member Country receiving a technical consultancy	Purpose	How the advice was provided
VIETNAM	Advice on the selection of PCR assays for the detection of BVDV in a contaminated vaccine	By a series of email exchanges
CANADA	Provision of technical advice on the development and use of primary cell cultures for BVDV virus isolation and as a substrate for VNTs	By a series of email exchanges including provision of reagents and images of stained cultures

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than the own?

No

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

No

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

No

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

No

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category and list the details in the box)

a) Articles published in peer-reviewed journals:

0

None in the period under review

b) International conferences:

0
None in the period under review

c) National conferences:

0
None in the period under review

d) Other (Provide website address or link to appropriate information):

0
None in the period under review

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAH Members?

No

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO17025	NATA Veterinary Certificate	NATA Vet Certificate 30.11.2021.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
ISO17025	NATA - National Association of Testing Authorities

20. Does your laboratory maintain a “biorisk management system” for the pathogen and the disease concerned?

Yes

The laboratory has a high level of physical containment with facilities at both BSL 2 and BSL3. All work in the laboratory is conducted in Class 2 biological safety cabinets and all biological material leaving the laboratory is autoclaved to ensure biocontainment. All staff are trained in the safe handling of infectious material and work practices to ensure containment of potentially infectious material. As BVDV is a common contaminant of cell cultures and medium supplements, there are rigorous protocols to ensure that all material remains

free of adventitious contamination and that test specimens are not inadvertently contaminated. As BVDV type 2 is exotic to Australia there are strict protocols associated with handling materials from other countries. Advice is also frequently given to exporters, artificial breeding centres and manufacturers about risks associated with BVDV infections and contamination of biological materials.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOAH?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOAH?

No

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAH Reference Laboratories for the same pathogen during the past 2 years?

Yes

Purpose for inter-laboratory test comparisons1	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the test	WOAH Member Countries
Proficiency testing for BVDV assays	Participant	7	BVDV VNT	AUSTRALIA,
Proficiency testing for BVDV	Participant	8	BVDV Antigen ELISA	AUSTRALIA,

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOAH?

Yes

Kind of consultancy	Location	Subject (facultative)
Professional contact	France/Australia	Review of WOAH Standards, provision of technical advice

29. Additional comments regarding your report:

Yes

While infection of livestock with bovine viral diarrhoea virus is extremely important for animal production and trade, we must place this disease into context. In short, for most of the countries in our region, this virus is treated with much lower priority than the major diseases such as FMDV and Lumpy Skin Disease facing member countries. Additionally, for both BVDV virus and antibody detection, for routine diagnostic investigations and for live animal exports, there are extremely good commercially available diagnostic test kits that are used extensively. These are used in preference to the more challenging cell culture based virus isolation and virus neutralisaton tests. Indeed, the antigen capture ELISA kit that dominates the global market was developed in my laboratory a little more than 30 years ago. This has been an invaluable alternative to virus isolation in cell culture that is extremely demanding for most laboratories and this option has

meant that there is much less demand for training in these methods. Nevertheless we receive occasional request from member countries for control samples. When we ask for a copy of an import permit, and whether the laboratory can assist with transport costs (I receive no funds for WOAH reference laboratory activities) we rarely receive any follow-up communication